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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/034,507 | 12/28/2001 | Guanghua Yu | 01-1129FS | 1270 |

30184 7590 07/28/2003

MYERS & KAPLAN, INTELLECTUAL
PROPERTY LAW, L.L.C.
1827 POWERS FERRY ROAD
BUILDING 3, SUITE 200,
ATLANTA, GA 30339

EXAMINER

MENON, KRISHNAN S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1723

DATE MAILED: 07/28/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,507

Applicant(s)

YU ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 20-23 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-17 is/are allowed.
- 6) ☒ Claim(s) 1-10, 18, 19 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-19 and 24, drawn to filter apparatus, classified in class 210, subclass 323.2.
- II. Claims 20-23, drawn to method of removal of water from hydrocarbons, classified in class 210, subclass 799.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus such as a gravity separation tank, and the apparatus can be used for another materially different process such as removal of emulsified oils from water.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Thomas Williamson, attorney of record, on 6/26/03, a provisional election was made with traverse to prosecute the invention of group I, claims 1-19 and 24. Affirmation of this election must be made by applicant in replying to this Office action. Claims

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20-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 24 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Williamson et al (US 5,443,724).

Williamson teaches a filter apparatus for coalescing water emulsified by a surfactant comprising filter with a hydrophobic filter medium having surface energy lower than that of the surfactant (see example).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

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skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (724) in view of Sweet (US 4,978,454).

Williamson teaches an apparatus for filtration of water from hydrocarbons (see example) comprising fresh feed inlet (14-fig 3a), a first dead-end filter having a hydrophobic filter medium (20), a second cross-flow filter having hydrophobic medium (30; col 6 lines 28-50 – hydrophobic materials), a common housing (see fig), a chamber for water settling (at 36) and a clean fluid outlet (24).

Williamson does not teach recirculating the retentate as in claim 1. Sweet teaches recirculating the retentate back to the settling zone in a system for separating stabilized emulsions (see fig 1; col 2 lines 16-32; col 5 lines 9-25). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Sweet in the teaching of Williamson and recycle the retentate back to the settling zone of the housing for separating stabilized emulsions as taught by Sweet (col 2 lines 16-32) for an improved resolution of the problem identified by Williamson (col 4 lines 1-5).

Claim 2 adds the limitation of ratio of cross flow to fresh feed, which is an optimization of the flows depending on the water content in the hydrocarbon. Discovery of an optimum value of a

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result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). Claim 3 has pressure differential between the feed and the permeate (see Williamson col 9 line 59 – col 10 line 21). Claim 4 has operating temperature, about which both references are silent. However, since there is no heating or cooling taught in the references, it would be obvious to one of ordinary skill in the art at the time of invention that the temperature is that of the ambient. Claim 5 adds material limitation to the dead-end filter as nylon, polyester, etc. (Williamson col 15 lines 21-40). Claim 6 has pore size of the dead end filter between 0.5 and 100 microns (col 15 lines 10-21). Claim 7 adds hollow fiber, spiral wound or tubular cartridges for the second filter (col 17 lines 1-18). Claim 8 adds cross flow filter as being made of PTFE (col 8 lines 54-58). Claims 9 and 10 have the porosity of the PTFE membrane at sub-microns level (Williamson: col 6 lines 32-38: Sweet: dialysis, ultrafiltration, etc, which use sub-micron pore-size membranes: col 4 lines 54-57).

Independent claim 18 further adds the limitation of plurality of first and second filters and independent claim 19 further adds the limitation of the first and second filters being in series, which Williamson teaches (see figures).

Allowable Subject Matter

Claims 11-17 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The closest prior art is Williamson in view of Sweet. Williamson does not teach the following structures of claim 11: A separate water settling chamber, a second cross-flow filter communicating on its inlet

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end with top chamber, outlet end with water settling chamber and permeate with the permeate chamber, and a sleeve for the cross-flow filter that is non-perforated.

Claims 12-17 depend from claim 11, and therefore, allowable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan Menon
Patent Examiner
July 19, 2003


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700